

STEM Years 1- 10 Year 4 Overview

Outcome	Concept	Activity	Worksheets	Resources Required
<p>SU Year 4</p> <p>Forces can be exerted by one object on another through direct contact or from a distance</p> <p>SHE Science involves making predictions and describing patterns and relationships</p> <p>Science knowledge helps people to understand the effect of their actions</p> <p>SIS With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge</p> <p>Suggest ways to plan and conduct investigations to find answers to questions.</p> <p>Safely use appropriate materials, tools or equipment to make and record observations, using formal measurements and digital technologies as appropriate</p> <p>Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends</p> <p>Compare results with predictions, suggesting possible reasons for findings</p> <p>Reflect on the investigation; including whether a test was fair or not</p> <p>Represent and communicate ideas and findings in a variety of ways such as diagrams, physical representations and simple reports</p>	<p>A contact force can move or stop an object. Friction and air resistance are examples of a contact force.</p> <p>A non contact force can move and stop objects. Gravity and magnetism are examples of non contact forces. Gravity always pulls things towards the earth. Magnets can pull or push when they interact with each other. Forces such as friction and gravity can be a benefit or hindrance to motion.</p> <p>Forces are balanced if they act in the opposite direction and in line with each other. Balanced forces cancel each other out so the object doesn't move.</p> <p>Balancing objects so they don't topple over, means balancing gravity with other forces.</p> <p>The centre of gravity on an object is where the gravity force acts. Centre of gravity is in the centre for symmetrical objects or where the most weight is.</p> <p>To keep an object stable its Centre of Gravity must be: 1. low so its weight is close to the ground. 2. above or below the contact point on the ground</p>	<p>Demonstrations and discussions of types of forces and the effects on motion</p> <p>Investigate rolling cars, gravity and friction</p> <p>Investigate action of magnets and their strength.</p> <p>Demonstrations and discussions on balancing things.</p> <p>Investigate centre of gravity and balance.</p> <p>Project Make a balancing toy.</p>	<p>4.1 Lessons on Forces</p> <p>4.2 Investigation Speed of rolling cars 4.2B LEGO car construction</p> <p>4.3 Investigating the strength of a magnet</p> <p>4.4 Lessons on Balance and the Centre of Gravity.</p> <p>4.5 Investigation- make a tightrope walker.</p> <p>4.6P Project: Make a balancing toy</p>	<p>Toy cars, magnets, wooden blocks</p> <p>LEGO or other Car Construction kits Ramp Measuring tape</p> <p>Materials for parachute Washers Fishing line stopwatch Ruler Half a lemon or orange Paddlepop stick</p> <p>Materials for tightrope walker: cork, screw, fishing line, coat-hanger wire, plasticine.</p> <p>Materials for Toy: Lego or other appropriate strong building material e.g. cardboard, ply or balsa wood, dowel, tooth picks, skewers, rubber thong or other plastic building material</p>

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<p>Technology Outcomes AC Syllabus Design</p> <p>4.2 Investigate how forces and the properties of materials affect the behaviour of a product or system</p> <p>4.4 Investigate the suitability of materials, components, systems, tools and equipment for a range of purposes</p> <p>4.7 Select and use materials, components, tools and equipment using safe work practices to make designed solutions</p> <p>4.8 Evaluate design ideas, processes and solutions based on criteria for success developed with guidance and including care for the environment</p> <p>4.9 Plan a sequence of production steps when making designed solutions individually and collaboratively</p>	<p>Magnets can pull or push when they interact with each other. Stable Objects have a certain shape and position to keep them balanced.</p> <p>Rolling cars have shapes and sizes that increase the distance they roll.</p> <p>To keep an object stable its Centre of Gravity must be: 1. low so its weight is close to the ground. 2. above or below the contact point on the ground</p> <p>Make a balance toy using scientific principles learnt</p>	<p>Investigate action of magnets and their strength.</p> <p>Investigate rolling cars, gravity and friction Demonstrations and discussions on balancing things. Investigate centre of gravity and balance.</p> <p>Project Make a balancing toy.</p>	<p>4.3 Investigating the strength of a magnet</p> <p>4.2 Investigation Speed of rolling cars 4.2B LEGO car construction</p> <p>4.4 Lessons on Balance and the Centre of Gravity.</p> <p>4.5 Investigation-make a tightrope walker.</p> <p>4.6P Project: Make a balancing toy</p>	
<p>Maths Outcomes AC Syllabus</p> <p>Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084)</p> <p>Create symmetrical patterns, pictures and shapes with and without digital technologies (ACMMG091)</p>	<p>Investigate and measure factors like size and weight affecting speed of rolling cars</p> <p>Make Tightrope walkers and design balance toys understanding symmetry and balance.</p>	<p>Investigate rolling cars, gravity and friction</p> <p>Project Make a balancing toy.</p>	<p>4.2 Investigation Speed of rolling cars</p> <p>4.6P Project: Make a balancing toy</p>	